Development and evaluation of metal artifact reduction and image segmentation techniques in PET/CT

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1. The recognition of all possible physiologic variation and technical artifacts are important in order to avoid interpretation pitfalls that could affect the diagnostic accuracy of PET. *S. Heiba et al, Clinical Positron Imaging, 2000*

2. Sinogram-based metal artifact reduction methods have more attractive properties owing to the fact that the footprints of the streaks are more precisely traceable in the sinogram domain. *This thesis, chapter 2*

3. Misalignment between PET images and attenuation maps should be avoided at all costs since it produces more severe metal-related pseudo-uptake. *This thesis, chapter 3*

4. The limitations of the current generation of PET scanners make the accurate determination of tumor shape and volume from FDG PET images a challenging task. *This thesis, chapter 7*

5. The contourlet transform of the image enhances the tumor-to-background ratio, which boosts the delineation of the object boundaries. *This thesis, chapter 8*

6. The contourlet-based active contour segmentation algorithm more successfully achieves a smooth contour over the segmented volume, than the classical active contour models do, when the image contains a high level of noise. *This thesis, chapter 8*

7. The highest forms of understanding we can achieve are laughter and human compassion. *Richard P. Feynman*

8. Men love to wonder, and that is the seed of science. *Ralph Waldo Emerson*

9. The greatest discoveries of science have always been those that forced us to rethink our beliefs about the universe and our place in it. *Robert L. Park, in The New York Times, 7 December 1999*

10. You are searching the world for treasure, but the real treasure is yourself. *Rumi*

11. The greatness of a people is not its past but its present.